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## GBPC 12, 15, 25, 35 SERIES Bridge Rectifiers (Glass Passivated)

### Features

- Integrally molded heat-sink provided very low thermal resistance for maximum heat dissipation.
- Surge Overload Ratings from 300 A to 400 A.
- Isolated voltage from case to lead over 2500 V.
- UL certified, UL #E258596
- Terminals Finish Material - Silver (Solderable per MIL-STD-202, Method 208 for the wire type GBPC-W package)  
- Nickel for GBPC package.

### Suffix “W”

- Wire Lead Structure

### Suffix “M”

- Terminal Location Face to Face



### Ordering Informations

Part Number	Marking	Package	Packing Method		
GBPC12005	GBPC12005	GBPC 4L	Bulk		
GBPC1201	GBPC1201				
GBPC1202	GBPC1202				
GBPC1204	GBPC1204				
GBPC1206	GBPC1206				
GBPC1208	GBPC1208				
GBPC1210	GBPC1210				
GBPC15005	GBPC15005				
GBPC1501	GBPC1501				
GBPC1502	GBPC1502				
GBPC1504	GBPC1504				
GBPC1506	GBPC1506				
GBPC1508	GBPC1508				
GBPC1510	GBPC1510				
GBPC25005	GBPC25005				
GBPC2501	GBPC2501				
GBPC2502	GBPC2502				
GBPC2504	GBPC2504				
GBPC2506	GBPC2506				
GBPC2508	GBPC2508				
GBPC2510	GBPC2510				
GBPC35005	GBPC35005				
GBPC3501	GBPC3501				
GBPC3502	GBPC3502				
GBPC3504	GBPC3504				
GBPC3506	GBPC3506				
GBPC3508	GBPC3508				
GBPC3510	GBPC3510				
GBPC1201W	GBPC1201W			GBPC-W 4L	Bulk
GBPC1202W	GBPC1202W				
GBPC1204W	GBPC1204W				
GBPC1206W	GBPC1206W				
GBPC1208W	GBPC1208W				
GBPC1210W	GBPC1210W				
GBPC15005W	GBPC15005W				
GBPC1501W	GBPC1501W				
GBPC1502W	GBPC1502W				
GBPC1504W	GBPC1504W				
GBPC1506W	GBPC1506W				
GBPC1508W	GBPC1508W				

**Ordering Informations** (continued)

Part Number	Marking	Package	Packing Method
GBPC1510W	GBPC1510W	GBPC-W 4L	Bulk
GBPC25005W	GBPC25005W		
GBPC2501W	GBPC2501W		
GBPC2502W	GBPC2502W		
GBPC2504W	GBPC2504W		
GBPC2506W	GBPC2506W		
GBPC2508W	GBPC2508W		
GBPC2510W	GBPC2510W		
GBPC35005W	GBPC35005W		
GBPC3501W	GBPC3501W		
GBPC3502W	GBPC3502W		
GBPC3504W	GBPC3504W		
GBPC3506W	GBPC3506W		
GBPC3508W	GBPC3508W		
GBPC3510W	GBPC3510W		

**Absolute Maximum Ratings**<sup>(1)</sup>

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Value							Units
		005	01	02	04	06	08	10	
$V_{RRM}$	Maximum Repetitive Reverse Voltage	50	100	200	400	600	800	1000	V
$V_{RMS}$	Maximum RMS Bridge Input Voltage	35	70	140	280	420	560	700	V
$V_R$	DC Reverse Voltage (Rated $V_R$ )	50	100	200	400	600	800	1000	V
$I_{F(AV)}$	Average Rectified Forward Current at $T_C = 55^\circ\text{C}$	GBPC12	12						A
		GBPC15	15						
		GBPC25	25						
		GBPC35	35						
$I_{FSM}$	Non-Repetitive Peak Forward Surge Current	GBPC12, 15, 25	300						A
	8.3ms Single Half-Sine-Wave	GBPC35	400						A
$T_{STG}$	Storage Temperature Range	-55 to +150							$^\circ\text{C}$
$T_J$	Operating Junction Temperature	-55 to +150							$^\circ\text{C}$

**Note:**

1. These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

### Thermal Characteristics

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Value	Units
$P_D$	Power Dissipation	83.3	W
$R_{\theta JC}$	Thermal Resistance, Junction to Case <sup>(2)</sup>	1.5	$^\circ\text{C/W}$

**Note:**

2. With Heatsink.

### Electrical Characteristics

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Test Conditions	Value	Units
$V_F$	Forward Voltage Drop, per bridge	6.0 A GBPC12	1.1 (Max)	V
		7.5 A GBPC15		
		12.5 A GBPC25		
		17.5 A GBPC35		
$I_R$	Reverse Current, per element at Rated $V_R$	$T_A = 25^\circ\text{C}$	5.0 (Max)	$\mu\text{A}$
		$T_A = 125^\circ\text{C}$	500 (Max)	$\mu\text{A}$
$I^2t$	Rating for Fusing $t < 8.35$ ms	GBPC12, 15, 25	375	$\text{A}^2\text{Sec}$
		GBPC35	660	$\text{A}^2\text{Sec}$
$C_T$	Total Capacitance, per leg $V_R = 4.0$ V $f = 1.0$ MHz	GBPC12, 15, 25	180	pF
		GBPC35	200	pF

## Typical Performance Characteristics



Figure 1. Forward Current Derating Curve

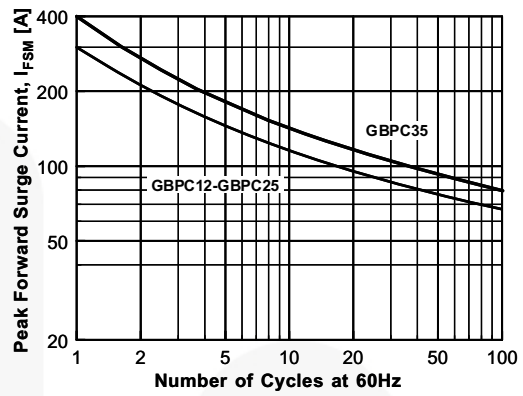


Figure 2. Non-Repetitive Surge Current

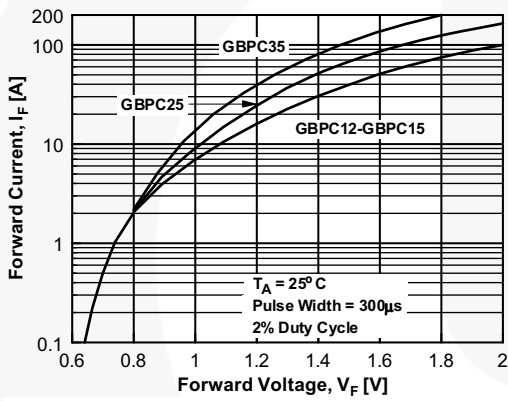


Figure 3. Forward Voltage Characteristics

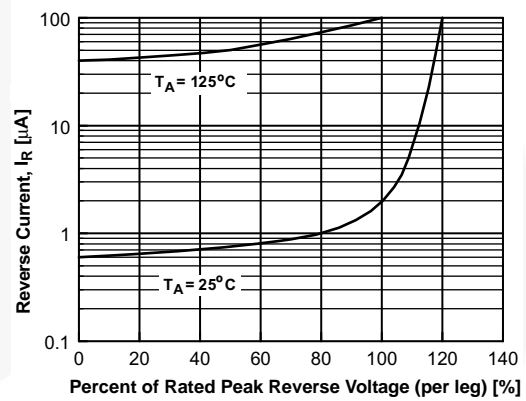


Figure 4. Reverse Current vs. Reverse Voltage

**Physical Dimension**

**GBPC**

**GBPC STYLE**



**GBPC-W STYLE**



**NOTES:**

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- D. FAIRCHILD SEMICONDUCTOR
- E. DRAWING FILE NAME: MKT-GBPC04A REV3

**Figure 5. 4-TERMINAL, COMBINATION GBPC AND GBPC-W (ACTIVE)**






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| AX-CAP®*  | FRFET®   | PowerTrench®  |  |
| BitSiC™   | Global Power Resource™                         | PowerXS™  | TinyBoost®  |
| Build it Now™   | GreenBridge™                                   | Programmable Active Droop™  | TinyBuck®   |
| CorePLUS™   | Green FPS™                                     | QFET®   | TinyCalc™   |
| CorePOWER™  | Green FPS™ e-Series™                           | QS™   | TinyLogic®  |
| CROSSVOLT™  | Gmax™  | Quiet Series™   | TINYOPTO™   |
| CTL™  | GTO™   | RapidConfigure™   | TinyPower™  |
| Current Transfer Logic™   | IntelliMAX™                                    |  | TinyPWM™  |
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| FastvCore™  | OPTOLOGIC®                                     | SupreMOS®   | VoltagePlus™  |
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